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ABSTRACT

This paper reports on a study to develop a scale of stress measurement and its use with undergraduate students (N=269) at a large land grant mid-Atlantic university. Students, within the classroom setting, were given a questionnaire containing 52 potentially stressful hypothetical situations and were asked to indicate the degree of stress they would feel if they found themselves in this particular situation. Stress-related items were factored into four dimensions having a total of 20 items: death/injury to a valued other; academic achievement; general college pressures; and college nuisances. These four factors accounted for 50% of the variance of the correlation mix. Among the findings was that female students reported more heightened stress than males across all factors. Additionally, some issues of academic achievement were the stress equivalent of "death or injury to a valued other," indicating that experienced stress is dependent on circumstances. It is noted that not only was the goal of developing a measure of college life stresses accomplished, but that an enhanced understanding of the relative magnitude and the interrelationships of the stresses today's college students face was achieved. Contains three references. (GLR)

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The Measurement of Stress Among College Students

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The Measurement of Stress Among College Students

Governmental agencies are fond of collecting statistics it seems. By perusing the latest copy of the Statistical Abstract of the Unites States, 1988, an amazing amount of information is available. Among these statistics (Table 118) is the fact that Americans between the ages of 15 and 24 die most frequently as the result of accidents (48.4 per 100,000) with the second leading cause of death being suicide (12.9 per 100,000). While this ratio may seem precise, there is cause to doubt the accuracy of the numbers.

There is every reason to suspect that a fair number of "accidents" may not be accidents: a young person who is accidentally killed playing Russian roulette, one who dies in a one car accident (with no skid marks) or one who takes too many sleeping pills. In a great many instances it is almost impossible to reconstruct the precise events surrounding an individual's death. In such circumstances, it is a matter of judgment on the part of medical personnel as to what probably happened. Unless the evidence were overwhelming, what medical examiner would add to the grief of a family by imposing the additional social stigma of a suicide? But, whatever the real

death rate, a substantial number of young Americans seem to take their own lives.

While there is no intent to down play the loss of any life, suicides among college students seem particularly poignant. What society can afford to squander the unrealized dreams of the brightest and the best without paying the terrible consequences of their lost potential? A way needs to be found to diminish this self-destructive pattern among our young people and particularly among our college students. In that vein, this study will focus on those persons enrolled as undergraduates at American universities.

A first step would appear to be the identification of those persons at risk. In that sense it seems clear that a person must be extremely distressed before considering suicide as a viable solution to life's problems. At first glance, the stress felt by the individual would appear to be well understood. Indeed, a very large number of stress related scales have been devised and used over the years (Holmes & David, 1984). However, closer examination of these scales reveals that none of them was specifically developed for a college age population measuring the stress which might occur in the college situation. The lack of such a scale is the

driving force in this study. We seek to develop a measure of stress tailored to college students which concerns the unique stresses of college life.

Method

The subjects for this study were all undergraduates at a large land grant mid-Atlantic university. The sample of students reported in this paper was 45% male (N = 121) and 55% female (N = 148). The students had at least one year of undergraduate college experience with 8% (N = 22) being sophomores, 37% juniors (N = 100) and 55% seniors (N = 147).

Sampling locale

It was important for this study that the university in which stress was measured be one in which college life stresses would be substantial. The university in this case fits that prerequisite. The student population from which this sample was drawn has an average entering SAT score of 1122 vs. a national norm of 906. These students are over two standard deviations above the American college norm (K. Wendler, ETS, personal communication, November 17, 1988). Moreover, only 65% of those entering eventually get degrees. Thus, the competition to get into the university is quite keen and the rate of attrition is considerable.

Procedure

Students were always sampled in the classroom situation. Stress items were presented via a questionnaire and respondents were asked to indicate the degree of stress they would feel if they found themselves in this particular situation. The situations were suggested by 52 items using a scale of 1 (Almost no stress) to 10 (Extreme stress). Respondents were always debriefed and their comments invited .

Scale development

For the first two years of this study the procedure followed above was administered to small groups (N = 30 to 50). Scale items were analyzed and the results were used to eliminate any bimodal items or high variance items. Results were then shared with the respondents to ascertain why items were seen as vague or ambiguous. Respondent inputs were always invited in brainstorming sessions and the revised or new items which were suggested almost always found their way into the next administration. This procedure was repeated six times to obtain the final pool of items (N = 52) used for the analysis in this study.

It should be noted that almost all of the 52 items used in this study were respondent generated. Thus, the persons suffering the stress are the

same persons suggesting the dimensions of stress.

Results

The first concern in this study was to ascertain the factorial structure of college related stresses. The 52 stress related items factored into four dimensions having a total of 20 items as shown in Table 1. These dimensions, discussed in descending order of magnitude, describe first of all a Death/injury to a valued other. This factor was measured by such items as: "A close personal friend dies." The second factor seems to illustrate Academic achievement as measured by: "You fail a course in your major"; the third, General college pressures have items such as: "You have to take a course which is difficult for you" and the fourth, College nuisances has such items as: "You know how to do the problem, but the numbers won't work out." These four factors account for 50% of the variance of the correlation matrix.

Insert Table 1 about here

Rotation of the factor solution produced some interesting but not totally surprising results. The solution is clearly oblique with the amount

of factorial overlap being large. The correlations among factors are shown in Table 2.

Insert Table 2 about here

The reliability of the scale was assessed using Cronbach's α. The reliability of the 20 item scale is .91. In addition, an iterative procedure was used to delete each of the 20 items one at a time recalculating the reliability without that item as a part of the scale. In no case was the reliability of the scale enhanced by the elimination of any item. This result enhances the confidence that no errant items are a part of the resultant scale.

Finally, each of the four dimensions were examined for significant differences depending on year in school and sex. In every case, females reported more stress than males. This difference was significant for every factor (Death: F (1,243) = 20.42; $p < .001$; Academic: F (1,243) = 14.87; $p < .001$; General: F (1,243) = 26.14; $p < .001$; Nuisances: F (1,243) = 4.03; $p < .05$). Moreover, these differences are not simply the result of a large sample size. The explained variance (ω^2) among the factors is:

Death: .07; Achievement: .05; General: .09; and Nuisance: .01.

Discussion

There is good reason to suspect that the 20 item scale of college life stresses developed in this study may approximate the full spectrum of stress experienced by college students in a highly competitive university situation. The death or injury to a valued other dimension was deliberately included in order to establish an upper limit from which we might judge the magnitude of college based stress. It is possible to construct an impact coefficient for each item by simply rounding off the item mean for that statement. Using that measure, the impact value of 95 (A member of your immediate family commits suicide) is likely to be very close to the maximal stress experienced by this population. By the same logic, the impact value of 23 (Being late for a class with a broken shoelace) is probably close to the lower limit of everyday living stress. In that sense, the present scale can be assumed to encompass the essential range of stresses experienced by college students.

The structure and magnitude of the factorial structure are also of interest. The oblique structure of the four factors strongly suggests that any impact on one dimension may lead to heightened susceptibility for other

dimensions. It would not be at all surprising for future investigations to discover that stresses are interactive rather than additive. In a metaphoric sense, two plus two may equal something greater than four; and, depending on the individual, the sum may be substantially greater than four.

It is also instructive, and somewhat surprising, to discover than some issues of academic achievement are the stress equivalent of death or injury to a valued other. This observation lends strong support to the notion that the amount of experienced stress is dependent on circumstances. While it may seem ludicrous to some that failing an exam in the major is seen at the same stress level as someone close being in a serious accident, this finding simply underscores the notion that stress is a highly situational variable. This correspondence corroborates the idea that stress is dependent on both experience in life and individual circumstances of the moment. It is important to understand that, to a 14 year old girl, the fact that her corsage does not match her prom dress is a very distressing event. The adult who lightly dismisses this issue displays an insensitivity of the first order.

Finally, there is the issue of heightened female self-reported stress across all factors. At least two possible explanations come to mind. First,

it is well documented that females self-disclose more than males (Pearson, 1985). Thus, we may be observing nothing more than the willingness of females to reveal that stress affects them. On the other hand, the reported female stress may be more an issue of economics than of sex. The vast majority of female respondents in this study are professionally oriented. They are in college to prepare for a career whether or not they happen to be in a serious interpersonal relationship. Moreover, these women also realize--at some level--that their income potential is only 64% of the male potential (Statistical abstract, Table 653) even when they are doing exactly the same job as the male. Therefore, if the female wishes to be successful, she must be 36% "better" than the male simply to stay economically even. In short, there may be good reason for enhanced female college stress.

Limitations

To take a completely different tack, the scale presented has a number of shortcomings. Among these is that fact that the impact coefficients assigned to scale items may mislead the nonquantitative reader. It is not at all clear than the difference between impacts of 60 and 70 are the equivalent of the difference between impacts of 70 and 80. Perhaps the best we may say is that one item appears more stressful than the other.

This caveat is particularly important in light of the interrelationships among the factors and the probable interactions among factors.

Second, the scale was developed at a high pressure and fiercely competitive university. Students at a more relaxed institution may exhibit much less stress than we have measured here.

Finally, the students themselves may be contributing a fair amount of stress in this study. Many of these young people are ambitious almost to a fault. More than once students suggested items which alluded to the pressures they felt from parents and friends. While these items did not survive the rigorous standards used in scale construction, the essence of those suggestions was reminiscent of ancient Sparta: "Come home with your shield, or upon it." Students at other schools may feel less pressure.

Implications

The major purpose of this little paper was to develop a measure of college life stresses. That goal has been achieved for the most part. The scale appears to have acceptable reliability and its range of measurement is broad.

The real utility of this instrument is more informational than diagnostic however. It is doubtful that a paper and pencil administration

would yield much more information than an extended interview in which the student is allowed to "talk about the things which have been bothering you." What has been added is an appreciation of the relative magnitude and the interrelationships of the stresses today's college students face. If this enhanced understanding is useful to the counselor, then the aims of this research have been well served.

References

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Table 1
Summary Data for Scale items

		Structure Matrix Factor Scores				Item Mean	s.d. σ
I.	DEATH/INJURY TO A VALUED OTHER	I	II	III	IV		
1	a member of your immediate family commits suicide	.57	-.32	.21	-.10	9.55	1.22
2	a close personal friend dies	.84	-.31	.32	.10	9.23	1.22
3	someone you care about is in a serious accident	.67	-.39	.32	.04	8.63	1.52
II.	ACADEMIC ACHIEVEMENT						
4	you fail a course in your major	.41	-.75	.46	.26	8.64	1.71
5	the exam, which you thought was scheduled for next week, is today	.33	-.60	.54	.21	8.38	1.94
6	you have a test today at 9:00; you wake up at 9:00	.35	-.59	.54	.33	7.96	1.99
7	you fail a term project	.40	-.73	.63	.28	7.84	1.81
8	you fail an exam in a course	.32	-.72	.42	.28	7.82	1.98
9	your final grade in a course is much lower than you expected	.35	-.61	.56	.43	5.98	1.90

Table 1(cont)

		Structure Matrix Factor Scores				Item Mean	s.d. σ
		I	II	III	IV		
III.	GENERAL COLLEGE PRESSURES						
10	you have four major tests in a single week	.42	-.58	.74	.30	7.69	2.11
11	you have to take a course overload	.49	-.51	.69	.35	6.95	2.02
12	you do poorly in an interview	.35	-.45	.69	.35	6.48	2.05
13	after the test, you realize you have misread an essay question	.34	-.55	.64	.32	6.28	2.10
14	you get the test and realize that you have underestimated the course	.34	-.51	.69	.37	6.24	2.09
15	you have to take a course which is difficult for you	.24	-.43	.82	.36	5.82	2.00
16	one of your teachers is a hard grader	.25	-.47	.77	.37	5.26	1.92
IV.	COLLEGE NUISANCES						
17	you know how to do the problem, but the numbers won't work out	.27	-.43	.56	.56	5.44	2.08
18	the library says you need to return a book you have already returned	.02	-.33	.36	.57	3.03	1.75
19	your host at a party urges you to drink	.09	-.23	.37	.60	2.56	1.94
20	you are late for a class and your shoelace breaks	-.02	-.17	.21	.68	2.28	1.83

Table 2

Factor Correlation Matrix

	Death	Academic	General	Nuisance
I	1.00			
II	-.46	1.00		
III	.39	-.61	1.00	
IV	.04	-.32	.44	1.00